

W221 ELO G, Intersection

MAP READING

ELO G W221/OCT 03/VGT-1

INTERSECTION

ACTION: LOCATE AN UNKNOWN POINT ON A MAP AND ON THE GROUND BY

CONDITIONS: IN A CLASSROOM ENVIRONMENT

GIVEN A 1:50,000 'TENINO' MAP, THE LOCATION OF TWO KNOWN POINTS, A STRAIGHT EDGE, A GTA 5-2-12 (COORDIANTE SCALE AND PROTRACTOR), A PENCIL, AND AN OBJECT OR TERRAIN FEATURE FOR WHICH TO DETERMINE THE GRID

STANDARD: DETERMINED THE 100,000 METER SQUARE IDENTIFICATION LETTERS AND SIX-DIGIT COORDINATES OF THE OBJECT OR TERRAIN FEATURE TO WITHIN 100 METERS.

ELO G W221/OCT 03/VGT-2

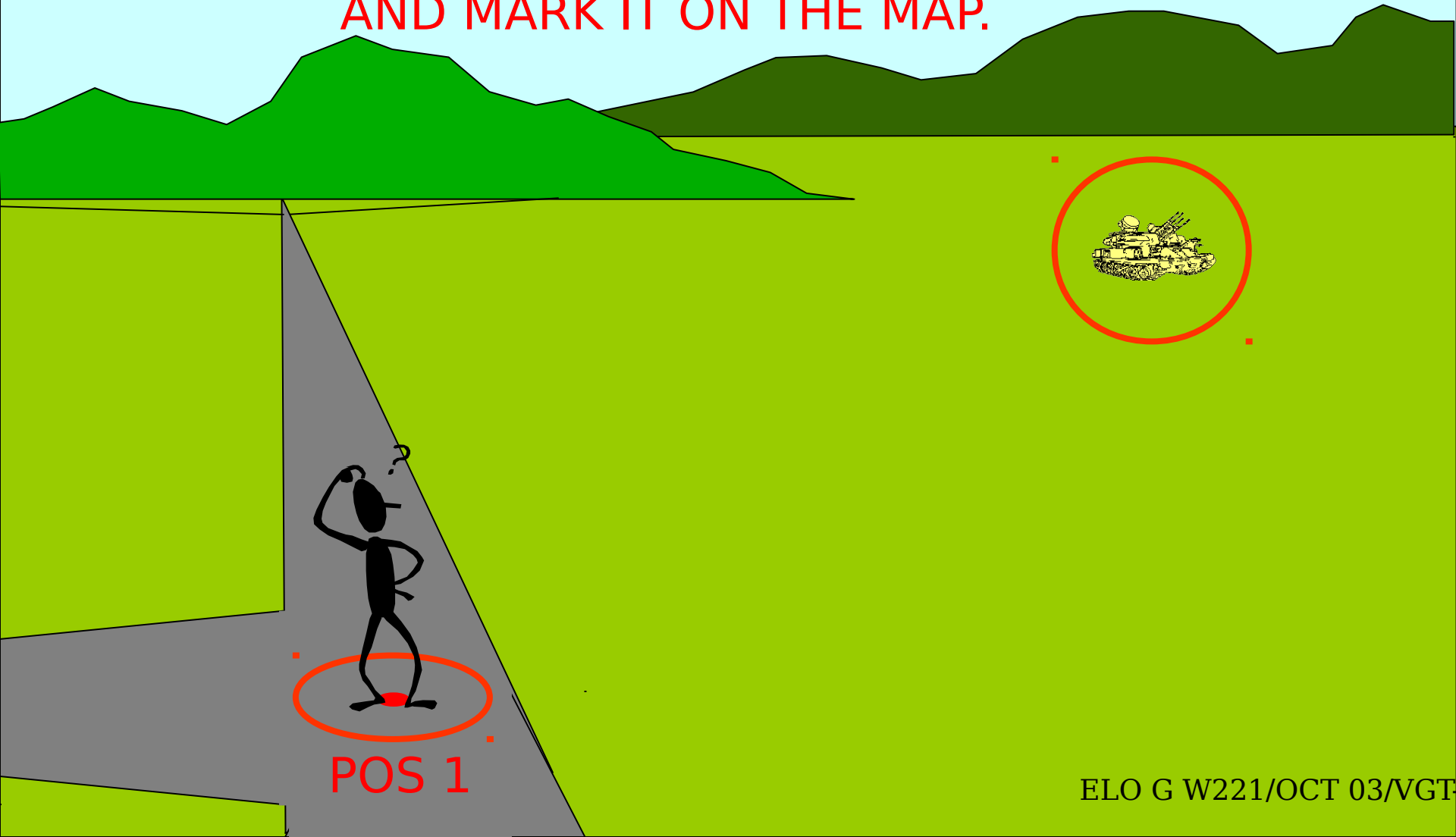
INTERSECTION

- **DETERMINE THE POSITION OF AN UNKNOWN POINT BY OCCUPYING AT LEAST TWO, BUT PREFERABLY THREE, KNOWN POSITIONS.**
- **DETERMINE THE AZIMUTH TO THE UNKNOWN POINT FROM THESE POSITIONS.**
- **PLOT THE AZIMUTHS FROM THE POSITIONS TO LOCATE THE UNKNOWN POINT BY THEIR INTERSECTION.**

ELO G W221/OCT 03/VGT-3

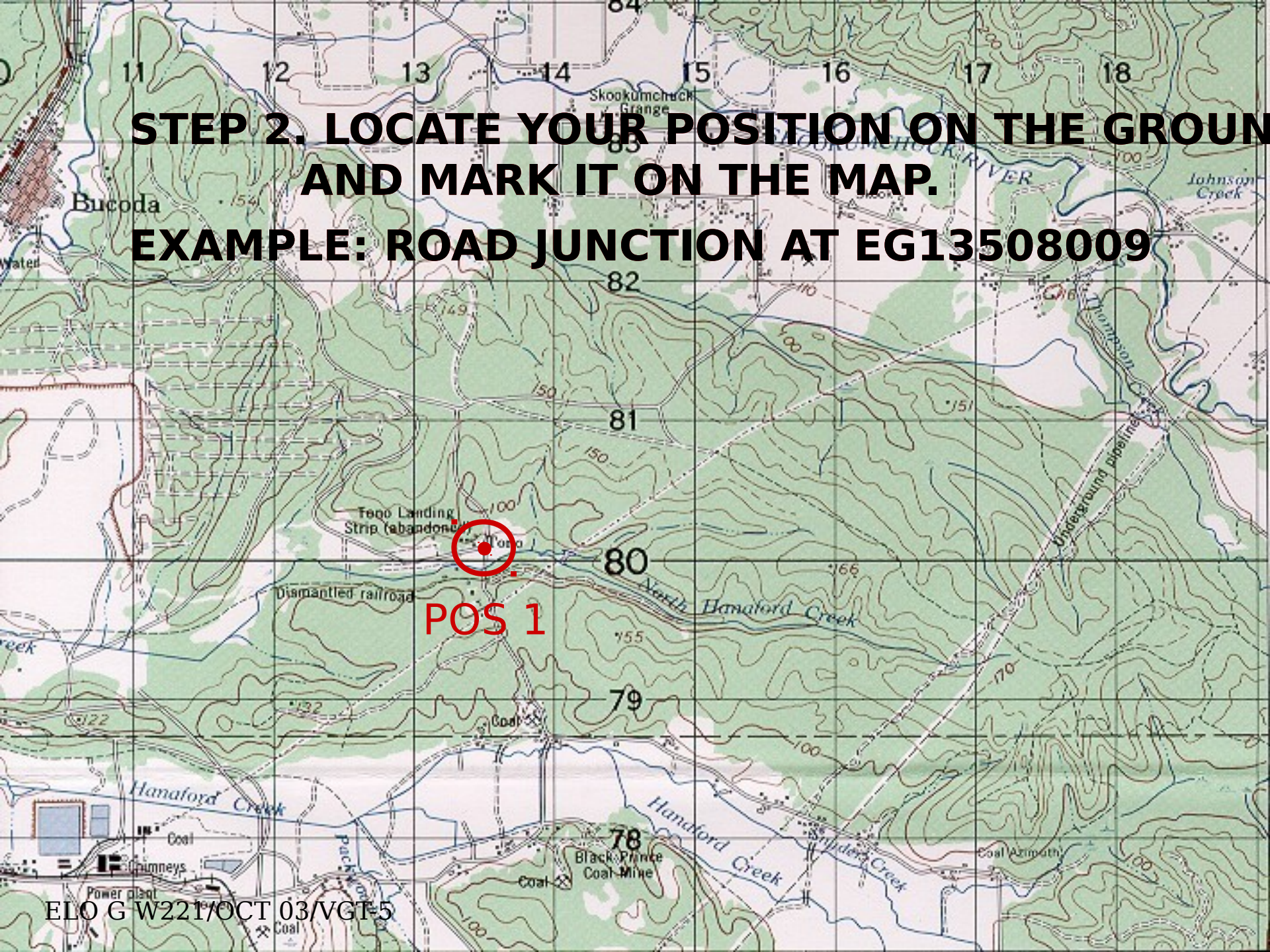
STEP 1. SIGHT THE UNKNOWN POINT ON THE GROUND.

STEP 2. LOCATE YOUR POSITION ON THE GROUND AND MARK IT ON THE MAP.

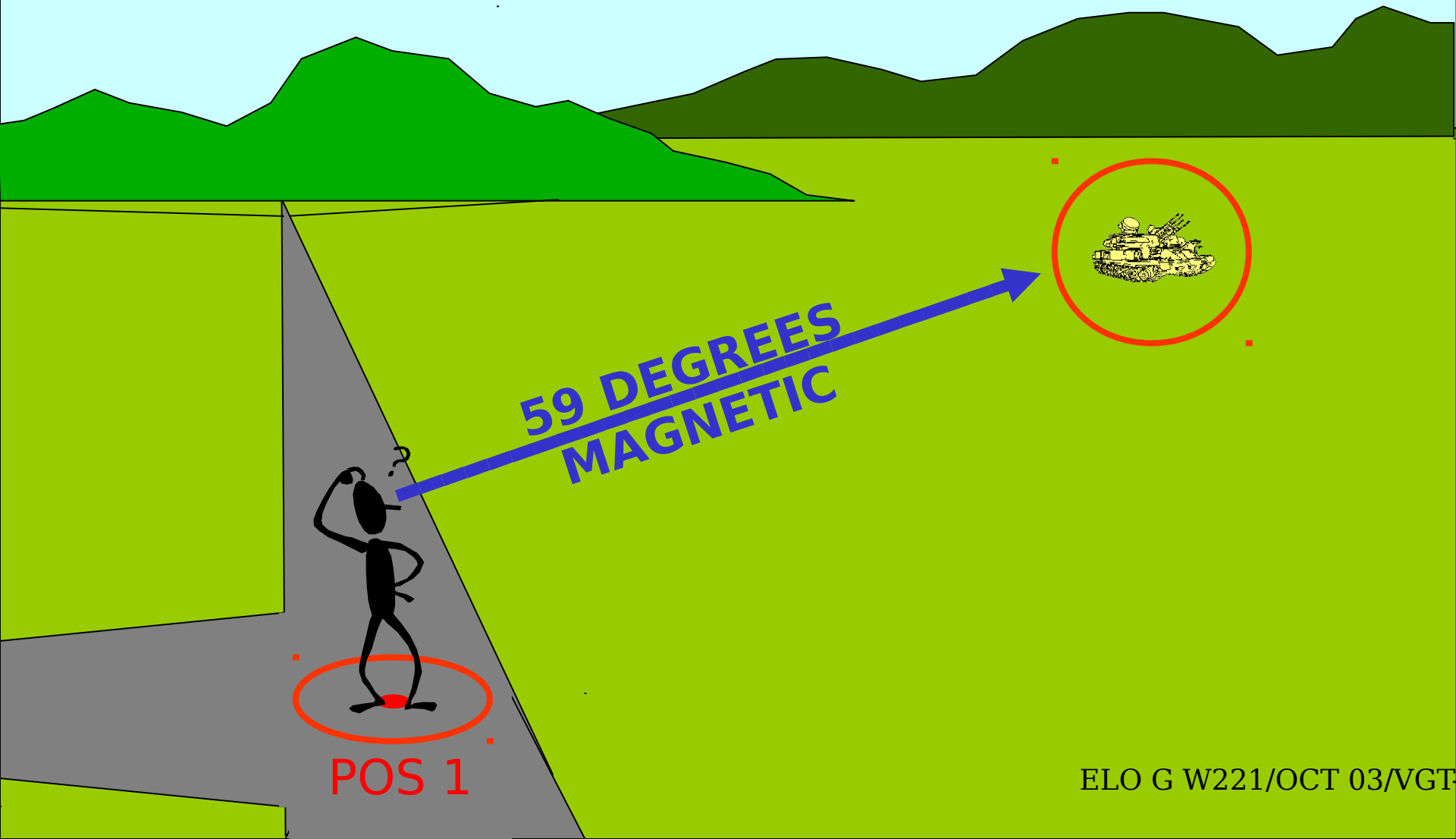


**STEP 2. LOCATE YOUR POSITION ON THE GROUND
AND MARK IT ON THE MAP.**

EXAMPLE: ROAD JUNCTION AT EG13508009



STEP 3. DETERMINE THE MAGNETIC AZIMUTH FROM THE ROAD JUNCTION TO THE ENEMY POSITION.



STEP 4. CONVERT THE MAGNETIC AZIMUTH TO A GRID AZIMUTH.

MAGNETIC AZIMUTH: 59 DEGREES

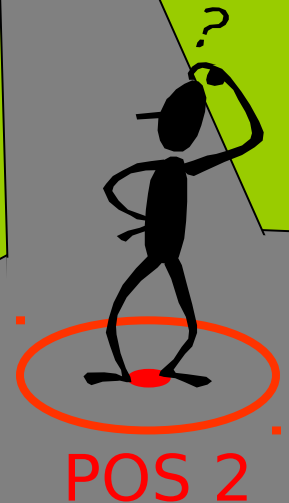
EASTERLY G-M ANGLE: +21 DEGREES

GRID AZIMUTH: 80 DEGREES

The map is a topographic representation of a coastal region, overlaid with a coordinate grid. The grid has horizontal and vertical axes with numerical scales. The horizontal axis at the top is labeled from 5800 to 6800 in increments of 200. The vertical axis on the left is labeled from 4200 to 5600 in increments of 200. The map features several geographical labels: 'Feo Landing Strip (abandoned)' in the upper center, 'Dismantled railroad' in the middle left, 'North Bay' in the middle right, and 'Chalard Creek' in the lower left. A point labeled 'POS 1' is marked with a black circle and a red dot at its center. A red line is drawn across the map, passing through 'POS 1' and extending towards the bottom right corner. The map includes two scale bars: one labeled '50,000 METERS' in the upper left and another labeled '100,000 METERS' in the lower left. Text in the upper right corner reads: 'GTA 5-2-12, 1981', 'DEPARTMENT of the ARMY', 'GRAPHIC TRAINING AID', 'This GTA supersedes', 'GTA 5-2-10, 1980', 'Title, COORDINATE SCALE AND PROTRACTOR', 'Headquarters, Department of the Army'. Below this, it says 'OUTER SCALE - MILS' and 'INNER SCALE - DEGREES'. The map also shows contour lines and various elevation points like 755, 79, and 78.

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**STEP 6. MOVE TO, OR PREFERABLY, RADIO A
SECOND POSITION FROM WHERE
SOMEONE CAN SEE THE UNKNOWN
POINT,
AND MARK THE POSITION ON THE
MAP.**



STEP 6. MOVE TO, OR PREFERABLY, RADIO A SECOND POSITION FROM WHERE SOMEONE CAN SEE THE UNKNOWN POINT, POINT, MARK THE POSITION ON THE MAP. AND MARK THE POSITION ON THE MAP.

POS 2

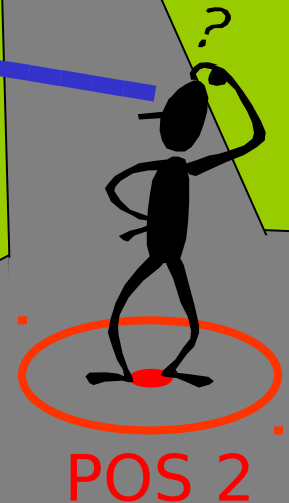
POS 1

EXAMPLE: ROAD JUNCTION AT EG13318108

STEP 7. DETERMINE THE MAGNETIC AZIMUTH FROM THE SECOND ROAD JUNCTION TO THE ENEMY POSITION.



**79 DEGREES
MAGNETIC**

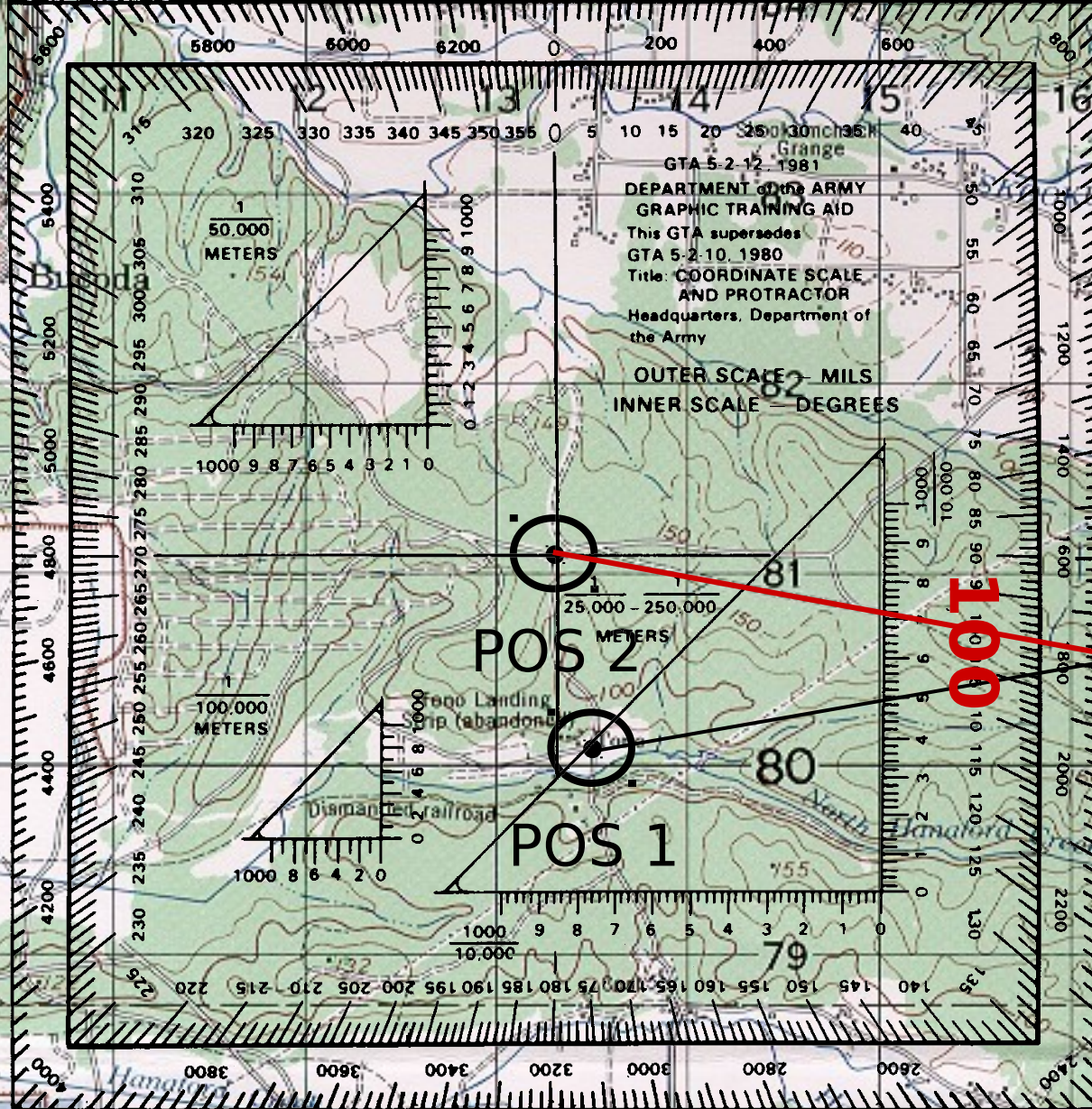


STEP 8. CONVERT THE MAGNETIC AZIMUTH TO A GRID AZIMUTH.

MAGNETIC AZIMUTH: 79 DEGREES

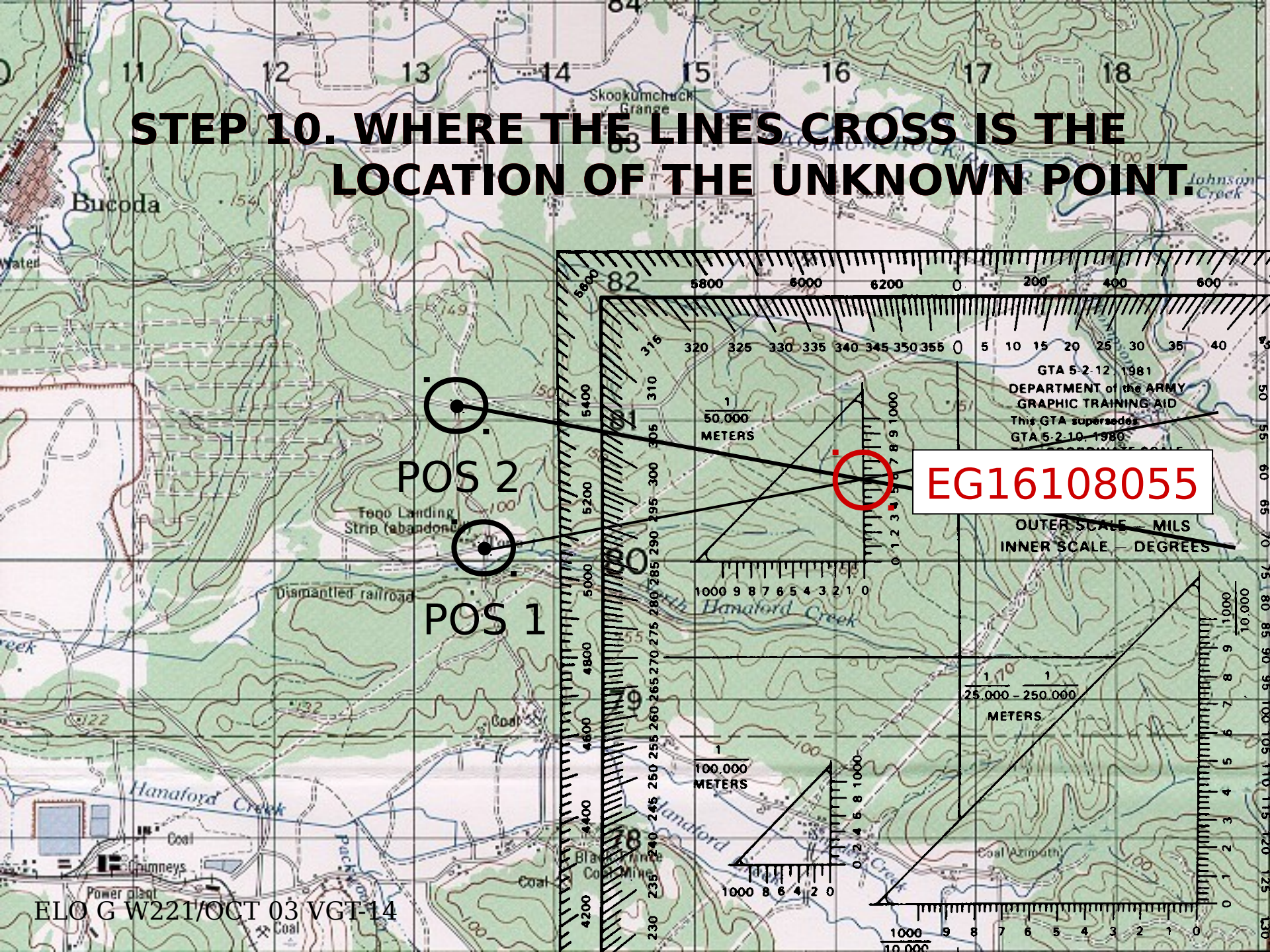
EASTERLY G-M ANGLE: +21 DEGREES

GRID AZIMUTH: 100 DEGREES

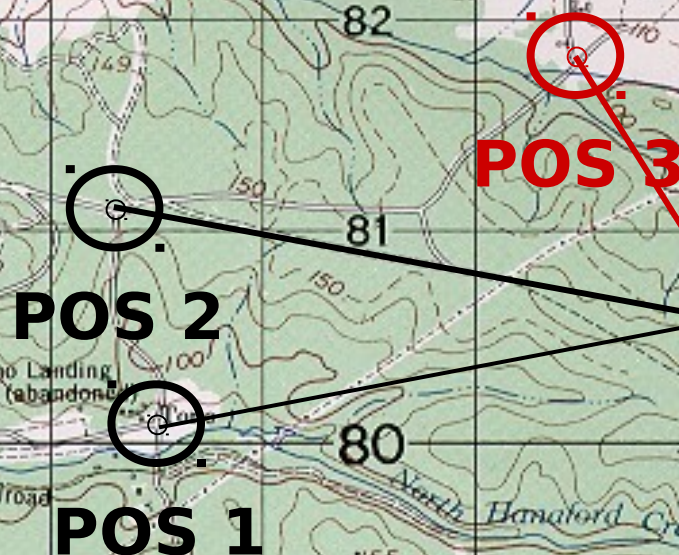


**STEP 9. DRAW
A LINE FROM
THE SECOND
ROAD
JUNCTION
ALONG THE
100 DEGREE
GRID
AZIMUTH.**

STEP 10. WHERE THE LINES CROSS IS THE LOCATION OF THE UNKNOWN POINT.



**IT'S DESIRABLE TO REPEAT THE PROCEDURE
FROM A THIRD POINT TO INCREASE THE
ACCURACY.**

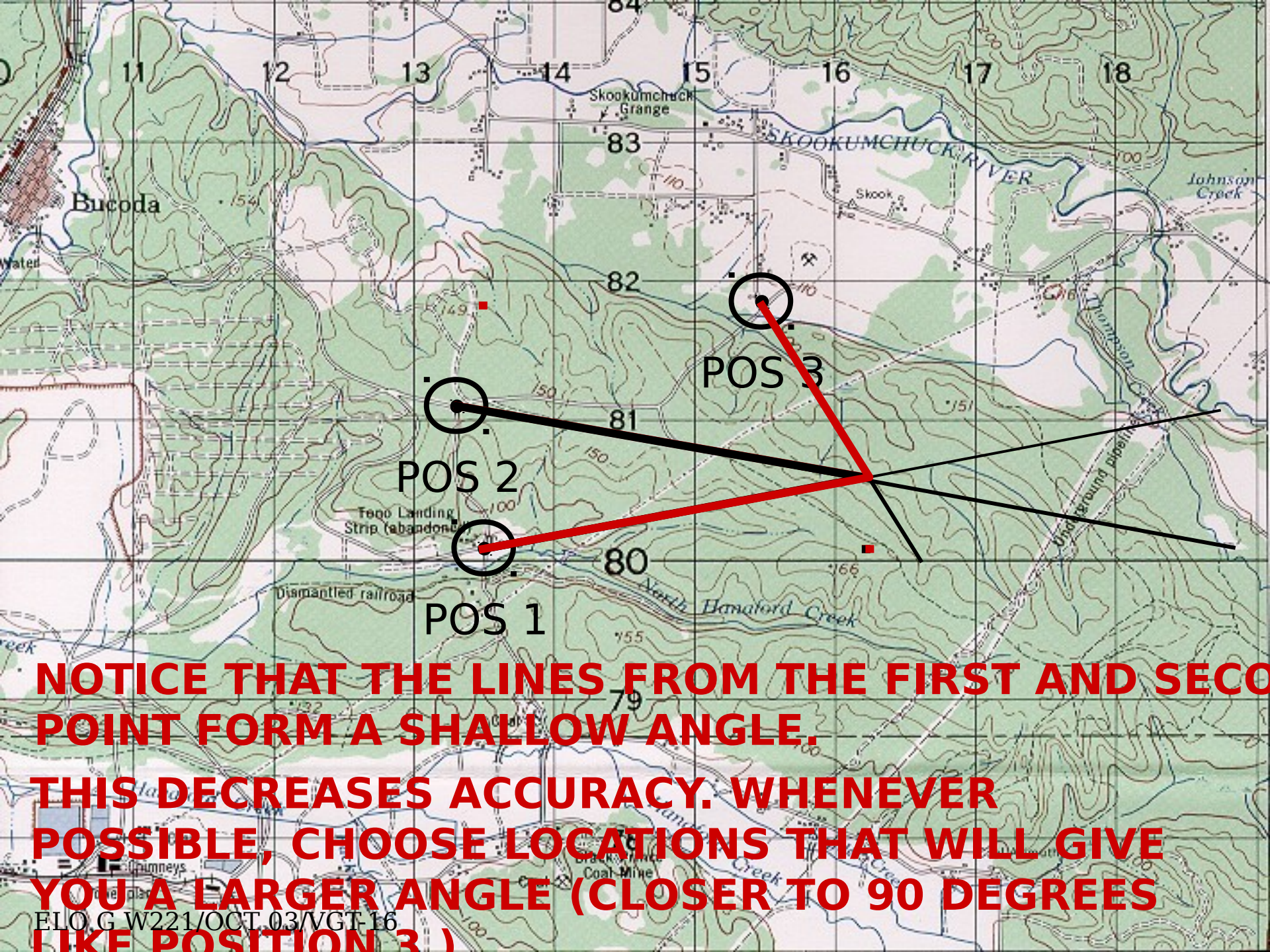


EXAMPLE: ROAD JUNCTION AT EG15478180

MAGNETIC AZIMUTH: 128 DEGREES

EASTERLY G-M ANGLE: +21 DEGREES

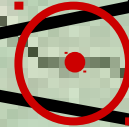
GRID AZIMUTH: 149 DEGREES



NOTICE THAT THE LINES FROM THE FIRST AND SECOND POINT FORM A SHALLOW ANGLE.

THIS DECREASES ACCURACY. WHENEVER POSSIBLE, CHOOSE LOCATIONS THAT WILL GIVE YOU A LARGER ANGLE (CLOSER TO 90 DEGREES LIKE POSITION 3.)

**NOTE: WHEN TRIANGULATING, RECORD THE
CENTER OF THE TRIANGLE AS THE
LOCATION.**



EG16208055

PRACTICAL EXERCISE #1

YOUR SQUAD OCCUPIES TWO OBSERVATION POSTS. THE TEAM AT THE WATER TOWER IN GRID SQUARE EG0985 SEES THE ENEMY AT A MAGNETIC AZIMUTH OF 351 DEGREES. THE SECOND TEAM, LOCATED AT THE WATER TOWER IN GRID SQUARE EG1185 SEES THE ENEMY AT A MAGNETIC AZIMUTH OF 300 DEGREES.

QUESTION: WHAT IS THE GRID LOCATION OF THE ENEMY?

ANSWER: GRID COORDINATE EG09798765

PRACTICAL EXERCISE #2

YOUR SQUAD IS OPERATING AS AN OBSERVATION TEAM AND YOU SEE SIX ENEMY HELICOPTERS LAND AND THEN DISAPPEAR FROM YOUR SIGHT. PRIOR TO THE HELICOPTERS DISAPPEARING, YOU SHOT A MAGNETIC AZIMUTH TO THE LOCATION WHERE YOU SAW THEM LAND. THIS MAGNETIC AZIMUTH IS $316 \frac{1}{2}$ DEGREES. YOUR LOCATION IS THE BRIDGE IN GRID SQUARE EH1000. YOU CONTACT YOUR OTHER TEAM LOCATED IN THE ZION CHAPEL TOWER AT GRID SQUARE EH1102. THEY HAVE A SIGHTING OF SIX ENEMY HELICOPTERS AT A MAGNETIC AZIMUTH OF $229 \frac{1}{2}$ DEGREES. BOTH YOUR TEAMS PERFORM AN INTERSECTION.

QUESTION: WHAT IS THE GRID LOCATION AND THE TYPE OF TERRAIN WHERE THE SIX ENEMY HELICOPTERS LANDED?

ANSWER: GRID LOCATION EH093022, DEPRESSION.

INTERSECTION WITHOUT A COMPASS

STEP 1. ORIENT THE MAP TO THE GROUND.

STEP 2. LOCATE YOUR POSITION ON THE GROUND AND MARK YOUR POSITION ON THE MAP.

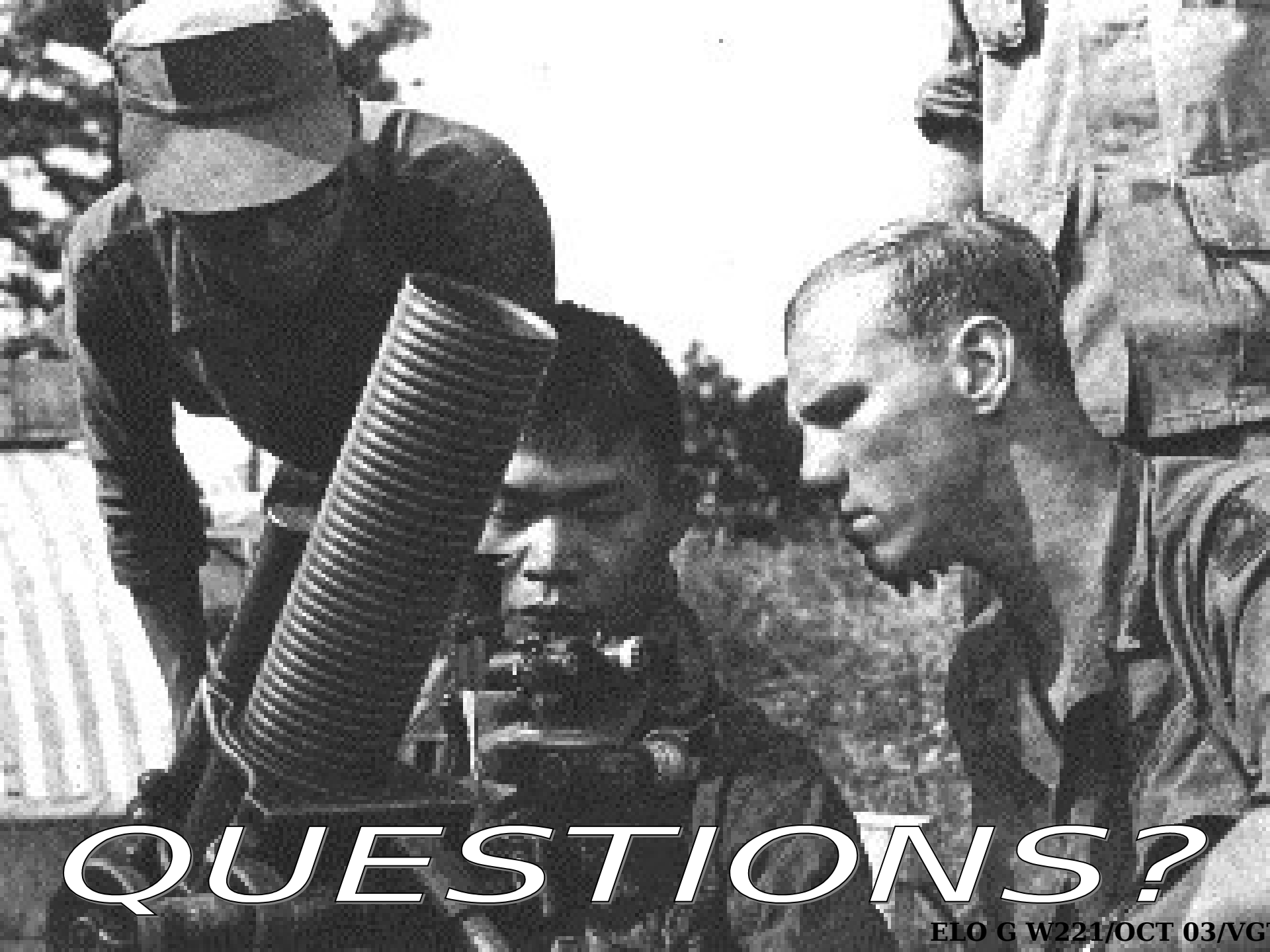
STEP 3. LAY A STRAIGHT EDGE (I.E., PROTRACTOR) WITH ONE END AT YOUR POSITION AS A PIVOT POINT, THEN ROTATE THE STRAIGHT EDGE UNTIL YOU SIGHT THE UNKNOWN POINT ALONG THE EDGE.

STEP 4. DRAW A LINE ALONG THE STRAIGHT EDGE.

STEP 5. REPEAT PROCEDURES 1 THRU 4 AT AN ALTERNATE KNOWN POSITION.

STEP 6. THE INTERSECTION OF LINES IS THE LOCATION OF THE UNKNOWN POINT.

STEP 7. AGAIN, CHECK FOR ACCURACY, YOU MAY USE A THIRD POSITION.



QUESTIONS?

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TAKE A BREAK

ELO G W221/OCT 03/VGT-22

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